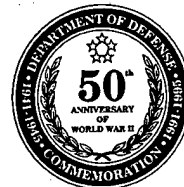




**INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884**



Report No. 95-281

July 27, 1995

**MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
AND TECHNOLOGY
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL
MANAGEMENT AND COMPTROLLER)
ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR FOR TEST, SYSTEMS ENGINEERING AND
EVALUATION
AUDITOR GENERAL, DEPARTMENT OF THE ARMY**

**SUBJECT: Audit of the Management and Capability of the Major Range and Test
Facility Bases (Project No. 5AB-0026)**

Introduction

We are providing this final memorandum report for your information and use. The DoD established Major Range and Test Facility Bases (test ranges) to provide areas and facilities for conducting tests. The test ranges provide test capabilities to the Military Departments, U.S. Government agencies, foreign governments, and private contractors. The test ranges are comprised of large land and sea areas. Generic test equipment and instrumentation are located throughout the test ranges, while individual test sites contain equipment and instrumentation required to perform specific types of tests. Management of the 19 test ranges are provided by the Military Department Headquarters under the policy guidance issued by the Office of the Secretary of Defense. The test ranges represent a DoD investment of approximately \$30 billion and have an annual operating budget of approximately \$5 billion.

Audit Results

Military Department Headquarters staffing levels for providing management oversight to test ranges were not excessive. Also, weapon system program managers utilized test ranges for performance of tests and, for the systems we reviewed, were not acquiring test resources that already existed at the test ranges. However, the Army research, development, and engineering centers were competing with the test ranges for conducting tests.

Audit Objectives

The audit objective was to evaluate management oversight provided to the test ranges and determine whether management oversight could be streamlined. The

audit also evaluated whether program managers were procuring test resources that already existed at the test ranges. Management controls related to the objectives were also evaluated.

Scope and Methodology

Scope and Methodology. We reviewed the management oversight structure and staffing levels at the Military Department Headquarters that are responsible for providing oversight to the test ranges. We conducted interviews of Headquarter personnel and examined the responsibilities of these functional groups in the Military Departments. We met with representatives from the Board of Directors for Test and Evaluation, Board of Operating Directors for Test and Evaluation, and the Joint Program Office for Test and Evaluation to determine their missions and responsibilities concerning test range oversight. We reviewed 210 Test and Evaluation Master Plans (TEMPs) for major and non-major weapon systems. Because of concerns identified during that review, 49 of those TEMPs were selected for a more detailed examination. For these weapon systems, we conducted discussions with weapon system officials and reviewed the supporting documentation of the test plans to identify test resources being acquired.

Audit Period, Standards, and Locations. We conducted this economy and efficiency audit from December 1994 through May 1995 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Accordingly, we included such tests of management controls considered necessary. We did not use computer-processed data or statistical sampling procedures for this audit. Enclosure 1 lists the organizations visited or contacted during the audit.

Termination of Audit Work. At the completion of the audit survey, we determined that the results did not justify further audit effort.

Management Control Program

DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987, requires DoD organizations to implement a comprehensive system of management controls that provide reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of the Management Control Program. We reviewed the management control plans and the annual assurance statements of the Military Department Headquarters and of the test ranges. We reviewed these plans and statements to determine whether management control weaknesses were identified that related to the audit objectives. We did not assess the adequacy of management's self-evaluation of those controls.

Adequacy of Management Controls. The management controls were deemed to be effective in that no material deficiencies were disclosed that related to the audit objectives.

Prior Audits and Other Reviews

No prior audits or reviews were done concerning the audit objectives.

Audit Background

The test ranges consist of 19 test and evaluation sites that the Military Departments operate and maintain for DoD test and evaluation support mission. Six Army, six Navy, and seven Air Force test ranges are located in the United States and its territories. In addition to supporting DoD Military Departments, the test ranges support other U.S. Government agencies, foreign governments, and private organizations.

The Deputy Secretary of Defense, through the Under Secretary of Defense for Acquisition and Technology, designated the Director for Test, Systems Engineering and Evaluation (formerly the Director, Test and Evaluation) as the official responsible for establishing policy for the test ranges. He is also responsible for monitoring and evaluating the test ranges to ensure that the test ranges can meet testing requirements. The Military Departments, under the policy guidance and oversight of the Director, are responsible for the management of their respective test ranges.

DoD Directive 3200.11 "Major Range and Test Facility Bases," September 29, 1980, establishes policies and responsibilities for operating the ranges. The Directive requires that the test ranges' capabilities be based on user requirements and that test capabilities will not be unnecessarily duplicated within the DoD.

Discussion

We identified no benefits to be derived by realigning management oversight of the test ranges from the Military Department Headquarters to an Office of the Secretary of Defense level activity. Also, we concluded that weapon system managers were generally utilizing, or planning to utilize, the test ranges to conduct their testing for the systems we reviewed. However, the audit identified an area of concern in that Army research centers were competing with test ranges to perform tests.

Management Oversight. The Military Department Headquarters staffing responsible for managing the test ranges was limited. The staff at the U.S. Army Test and Evaluation Command for test range oversight was 7 personnel, the Naval Air Warfare Center was 8 personnel, and the Air Force Material Command was 14 personnel. Because the Military Departments would require some staffing at the headquarters level if management oversight functions were transferred to an Office of the Secretary of Defense (OSD) level activity, a limited cost benefit would be derived from the consolidation.

The 1989 Defense Management Report proposed establishing a single Research, Development, Test and Evaluation agency. As an alternative to establishing this

proposed agency, the Military Departments obtained approval to establish a Board of Directors for Test and Evaluation. The Under Secretary of Defense for Acquisition (now the Under Secretary of Defense for Acquisition and Technology) approved the establishment of the Board of Directors in October 1993. The Board of Directors has the responsibility to approve and commit testing resources to meet testing requirements, to approve and promulgate test infrastructure investment policy, and to provide test infrastructure standards.

We reviewed the accomplishments of the Board of Directors for Test and Evaluation and its suborganizations. The Board of Directors initiated several reviews in areas of test range capability consolidations. However, the Board of Directors had not initiated action on the initial reviews because further analyses were needed and the 1995 Defense Base Realignment and Closure Commission, Test and Evaluation Joint Cross-Service Working Group, was examining the potential for test range adjustments.

Due to the limited staffing at the Military Departments and the recently established Board of Directors, we determined that no further audit effort was warranted in this area.

Procurement of Test Resources. We reviewed 210 TEMPs to determine whether test resources being acquired currently exist at the test ranges. We conducted a more detailed review of 49 TEMPs because of concerns for test locations used and potential duplication of testing resources. For those cases, we conducted discussions with the program office personnel, reviewed budget data and work breakdown structures, and examined detail test plans. We determined that test resources were not being duplicated for systems reviewed.

Competing for Testing. The Army's Research, Development and Engineering Centers (RDEC) are competing with the test ranges for the performance of tests. We identified two programs, Army Selectable Lightweight Attack Munition and the Marine Corps Amphibious Assault Vehicle, that utilized RDEC to conduct testing rather than the Major Range and Test Facility Bases.

Army Selectable Lightweight Attack Munition Program. The Army Selectable Lightweight Attack Munition (SLAM) program is responsible for the development and procurement of a multi-purpose munition/demolition device. Munition programs require testing for the effects of different environments to preclude premature explosion (electromagnetic environmental effects) for safety considerations. The SLAM TEMP dated October 1992 identified White Sands Missile Range as the site for the electromagnetic environmental effects testing. However, the tests were actually conducted at the Armament RDEC at Picatinny Arsenal. According to SLAM program official, the tests were conducted at Picatinny Arsenal RDEC because it was cost-effective. However, the program

official was unable to substantiate the results of a cost comparison. In addition, the Armament RDEC at Picatinny Arsenal had recently acquired testing capabilities for electromagnetic environmental effects through its research and development funding. As a result, the RDEC can also compete with the test ranges for electromagnetic environmental effects testing for small items.

Marine Corps Amphibious Assault Vehicle Program. The Marine Corps Amphibious Assault Vehicle program had vehicle performance and endurance testing at an RDEC rather than a test range. The Tank-Automotive and Armaments Command (TACOM) RDEC acquired test capabilities that can simulate various terrains for vehicle testing. The terrain vehicle testing by TACOM duplicates test range capabilities at Yuma Proving Ground and the Combat Systems Test Activity, Aberdeen Proving Ground. TACOM officials stated that this testing is typically conducted at a test range but the TACOM capabilities were better because tests can be conducted continuously, less staffing is required, no environmental damage is incurred, test costs are lower, and tests can be accurately repeated to better identify causes of failures in an environmentally controlled test environment.

Conclusion

The test ranges are considered national assets and are maintained for weapon system manager use to satisfy testing requirements. DoD has expended substantial financial resources to establish and maintain the test ranges. The establishment of duplicative capabilities at the RDECs unnecessarily adds to DoD infrastructure. Having the RDEC compete with test ranges for test performance workload operates at cross purposes with the overall goals of DoD test infrastructure management; the test ranges should be used to the fullest extent possible.

Management Comments

We provided a draft of this report to the addressees on June 13, 1995. Because the report contains no findings or recommendations, no comments were required, and none were received from the addressees. Comments were received from Sensor Fuzed Weapon program, which was discussed in the draft report. Based on those comments, we revised the report deleting reference to the Sensor Fuzed Weapon program from this final report.

We appreciate the courtesies extended to our audit staff. If you have questions on this audit, please contact Mr. Raymond A. Spencer, Program Director, at (703) 604-9071 (DSN 664-9071) or Mr. Roger H. Florence, Project Manager, at (703) 604-9067 (DSN 664-9067). Enclosure 2 lists the distribution of this report.



Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosures

Organizations Visited or Contacted

Office of the Secretary of Defense

Director, Operational Test and Evaluation, Washington, DC
Director for Test, Systems Engineering and Evaluation, Washington, DC
Joint Program Office for Test and Evaluation, Washington, DC

Department of the Army

Test and Evaluation Management Agency, Washington, DC
Army Materiel Command, Alexandria, VA
Operational Test and Evaluation Command, Falls Church, VA
Army Research, Development and Engineering Center, Picatinny Arsenal, NJ
Communications Electronics Command, Fort Monmouth, NJ
Tank-Automotive and Armaments Command, Warren, MI
Test and Evaluation Command, Aberdeen Proving Ground, MD
Simulation Training and Instrumentation Command, Orlando, FL

Department of the Navy

Office of Test and Evaluation and Technology Requirements, Washington, DC
Naval Air Systems Command, Washington, DC
Naval Sea Systems Command, Washington, DC
Operational Test and Evaluation Force Command, Norfolk, VA
Space and Naval Warfare Systems Command, Washington, DC

Department of the Air Force

Air Force Test and Evaluation Directorate, Washington, DC
Air Force Materiel Command, Wright-Patterson Air Force Base, OH
Aeronautical Systems Center, Eglin Air Force Base, FL
Aeronautical Systems Center, Wright-Patterson Air Force Base, OH
Air Force Developmental Test Center, Eglin Air Force Base, FL
Electronic Systems Center, Hanscom Air Force Base, MA

Other Defense Agencies

Defense Plant Representative Office, Martin Marietta Corporation, Orlando, FL

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Non-Defense Federal Organizations

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Senate Subcommittee on Defense, Committee on Appropriations
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Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security

Audit Team Members

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